

BEFORE  
THE PUBLIC SERVICE COMMISSION OF  
SOUTH CAROLINA  
DOCKET NO. \_\_\_\_\_

In the Matter of )  
 )  
Amended Project Development Application of )  
Duke Energy Carolinas, LLC )  
for Approval of Decision to Incur Nuclear )  
Generation Pre-Construction Costs )  
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**DIRECT TESTIMONY OF**  
**JAMES E. ROGERS FOR**  
**DUKE ENERGY CAROLINAS, LLC**

1                                   **I. INTRODUCTION AND PURPOSE**

2   **Q.     PLEASE STATE YOUR NAME, ADDRESS AND POSITION WITH DUKE**  
3           **ENERGY CORPORATION.**

4   **A.**    My name is James E. Rogers, and my business address is 526 South Church  
5           Street, Charlotte, North Carolina. I am Chairman, President, and Chief Executive  
6           Officer (“CEO”) of Duke Energy Corporation (“Duke Energy”). Duke Energy  
7           Carolinas, LLC (“Duke Energy Carolinas” or the “Company”) is a subsidiary of  
8           Duke Energy.

9   **Q.     PLEASE DESCRIBE BRIEFLY YOUR EDUCATIONAL AND**  
10           **PROFESSIONAL EXPERIENCE.**

11   **A.**    I received a Bachelor’s Degree in Business Administration (1970) and law degree  
12           (1974) from the University of Kentucky. Prior to assuming my current position at  
13           Duke Energy in April 2006, I was Chairman and Chief Executive Officer of  
14           Cinergy Corp. (“Cinergy”). I helped create Cinergy in 1994 through the merger  
15           of PSI Resources, Inc. (“PSI Resources”), the parent company of PSI Energy,  
16           Inc., (“PSI Energy”) and The Cincinnati Gas & Electric Company. Prior to the  
17           formation of Cinergy, I was Chairman and Chief Executive Officer of PSI  
18           Resources and PSI Energy.

19           Before joining PSI Resources in October 1988 as Chief Executive Officer,  
20           I was Executive Vice President of the gas pipeline group of Enron Corp.  
21           (“Enron”), and President of Enron’s interstate natural gas pipeline companies  
22           from 1985 to 1988. From 1979 to 1981 and from 1983 to 1985, I was in private  
23           law practice in Washington, D.C., with the law firm of Akin, Gump, Strauss,

1 Hauer & Feld. During that time, I represented natural gas pipelines, gas  
2 producers, and electric utilities before the Federal Energy Regulatory Commission  
3 ("FERC") and various federal courts. From 1981 to 1983, I was deputy general  
4 counsel for litigation and enforcement at the FERC. In that position, I directed  
5 the FERC's litigation efforts in cases involving electric rates, hydroelectric  
6 licensing, gas producer and gas pipeline rates. I began my career with the  
7 Kentucky Attorney General's office, representing consumer interests in utility  
8 cases.

9 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL AFFILIATIONS.**

10 **A.** I am the immediate past Chairman for and served on the Executive Committee of  
11 the Edison Electric Institute. I also serve on the boards of the American Gas  
12 Association, U.S. Chamber of Commerce, Business Roundtable, and the National  
13 Coal Council. I am Co-Chair of the Energy Efficiency Action Plan Leadership  
14 Group (the "Leadership Group"), formed by the U.S. Department of Energy and  
15 the U.S. Environmental Protection Agency ("EPA") and approximately fifty  
16 leading electric and gas utilities, state utility commissioners, state air and energy  
17 agencies, energy service providers, energy consumers, and energy efficiency and  
18 consumer advocates. The Leadership Group was formed to drive an aggressive  
19 new national commitment to energy efficiency. I am a Director of Fifth Third  
20 Bancorp and Cigna Corporation. I also am a member of the boards of directors of  
21 the Nuclear Energy Institute, the Institute of Nuclear Power Operations, the  
22 Alliance to Save Energy, and the Nicholas Institute for Environmental Policy  
23 Solutions at Duke University.

1    **Q.    WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2    **A.**    The purpose of my testimony is to support Duke Energy Carolinas' Amended  
3    Project Development Application for Approval of Decision to Incur Nuclear  
4    Generation Pre-Construction Costs (the "Amended Application"). In this  
5    Amended Application, Duke Energy Carolinas seeks a determination from the  
6    Public Service Commission of South Carolina ("Commission") that it is prudent  
7    for the Company to incur additional pre-construction costs for the Company's  
8    proposed William States Lee, III Nuclear Station ("Lee Nuclear Station") to be  
9    located in Cherokee County, South Carolina. The South Carolina allocable  
10   portion of these total development costs is approximately 25%.

11            I will discuss and emphasize the importance of the requested approval to  
12   Duke Energy Carolinas. I will also discuss the importance of the proposed Lee  
13   Nuclear Station to our strategic plans to meet customers' needs for reliable, clean  
14   and cost-effective electricity while modernizing our fleet, increasing diversity  
15   among our generation resources and reducing our environmental footprint.

16            In addition to my testimony, Dhiaa Jamil, Duke Energy's Group Executive  
17   and Chief Generation Officer, as well as Chief Nuclear Officer for Duke Energy  
18   Carolinas, testifies to the status of ongoing development work and estimated costs  
19   for Lee Nuclear Station. Janice Hager, Vice President, Integrated Resource  
20   Planning and Regulated Analytics for Duke Energy, also testifies regarding the  
21   most recent integrated resource planning analysis that supports the continued  
22   development of Lee Nuclear Station.

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## **II.    RATIONALE FOR PURSUING LEE NUCLEAR STATION**

1   **Q.   WHY IS DUKE ENERGY CAROLINAS CONTINUING THE**  
2   **DEVELOPMENT OF LEE NUCLEAR STATION?**

3   **A.**   Duke Energy Carolinas has an obligation to plan for and meet our customers'  
4   energy needs, and we must do so reliably and cost-effectively in the face of an  
5   uncertain future. Lee Nuclear Station will provide significant value to our  
6   customers in the face of the uncertainties posed by future economic,  
7   environmental, regulatory, and operating circumstances, and as such, it is prudent  
8   for us to continue the necessary development activities to obtain the Combined  
9   Construction and Operating License ("COL") for Lee Nuclear Station expected in  
10   2013.

11   **Q.   WHAT ROLE DOES THE DEVELOPMENT OF LEE NUCLEAR**  
12   **STATION PLAY IN DUKE ENERGY CAROLINAS' STRATEGIC PLANS**  
13   **TO MEET CUSTOMER NEEDS?**

14   **A.**   Duke Energy Carolinas has developed a strategic plan to meet sustained customer  
15   load growth, while maintaining prudent flexibility to respond to dynamic  
16   regulatory, environmental, and operating circumstances. Lee Nuclear Station is a  
17   key component of Duke Energy Carolinas' comprehensive modernization plan,  
18   which also includes increased energy efficiency and demand-side management  
19   programs, renewable energy resources, new natural gas resources, and the  
20   advanced clean coal Cliffside Unit 6. The number of customers the Company  
21   serves continues to grow. As Company Witness Janice Hager discusses in her  
22   testimony, the recently filed 2010 Integrated Resource Plan demonstrates that  
23   Duke Energy Carolinas has a cumulative need for approximately 2,200 MW of

1 new generation capacity by 2020, which grows to approximately 6000 MW by  
2 2030.

3 In addition to meeting our customers' growing energy needs, the  
4 Company must also consider a changing regulatory landscape. At present, almost  
5 40% of Duke Energy Carolinas' energy is produced from coal resources; the  
6 Company's fleet of generating facilities simply must change along with the  
7 evolving environmental, legal, and regulatory constraints. As part of the  
8 Company's commitments in North Carolina<sup>1</sup>, Duke Energy Carolinas will retire  
9 approximately 1,000 MW of older, less-efficient coal units as new energy  
10 efficiency savings are achieved and the new advanced clean coal Cliffside Unit 6  
11 is added to our fleet. The Company also anticipates retiring all of its older coal  
12 generation resources that do not have installed flue gas desulfurization facilities  
13 by 2015 due to the anticipated impact of a series of new proposed U.S.  
14 Environmental Protection Agency ("EPA") rules regulating multiple areas  
15 relating to generation resources. In sum, the Duke Energy Carolinas 2010 IRP  
16 assumes that Duke Energy Carolinas will be retiring approximately 1,667 MWs of  
17 coal generation resources within the next 5 years.

18 **Q. HAS THE COMPANY'S PLANNED COMMERCIAL OPERATION DATE**  
19 **FOR LEE NUCLEAR STATION CHANGED SINCE THE ORIGINAL**  
20 **APPLICATION?**

21 **A.** Yes. On September 1, 2009, the Company notified the Nuclear Regulatory  
22 Commission that a commercial operation date ("COD") of 2021 is more  
23 appropriate than the 2018 date originally sought by the Company in its Combined

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<sup>1</sup> North Carolina Utilities Commission Docket Nos. E-7, Sub 790, and Docket No. E-7, Sub 831.

1 Construction and Operating License Application filed on December 13, 2007 (the  
2 "COLA"). This decision was based on our internal resource planning process,  
3 which includes analyses of various data and management's perspective on and  
4 interpretation of the data. Company Witness Hager provides more details  
5 regarding the resource planning process.

6 **Q. WHY IS DUKE ENERGY CAROLINAS SEEKING A DETERMINATION**  
7 **FROM THIS COMMISSION THAT ITS DECISION TO INCUR**  
8 **ADDITIONAL PRE-CONSTRUCTION COSTS IS PRUDENT?**

9 **A.** The Company anticipates receiving the COL from the Nuclear Regulatory  
10 Commission by December 31, 2013. Nuclear generation facilities have a very  
11 long lead time and, as described in the testimony of Witness Dhiaa Jamil, there is  
12 still a great deal of development work to be done and costs to be incurred to meet  
13 the 2021 COD set forth in the Company's COLA. The Company cannot obtain  
14 the COL in 2013 to support the 2021 COD without incurring estimated total costs  
15 of up to \$459 million. Also, in 2007, the legislatures in both South Carolina and  
16 North Carolina passed legislation that expressly provides for commission  
17 approval of a utility's decision to incur nuclear pre-construction costs. The  
18 legislation also provides additional assurance for recovery of nuclear financing  
19 costs during construction. The Company believes that the assurances sought by  
20 this Amended Application are consistent with those laws and the Commission's  
21 prior order in Docket No. 2007-440-E.

1    **Q.    WHY IS NUCLEAR THE RIGHT CHOICE GIVEN THE CURRENT**  
2           **STATE OF CARBON LEGISLATION AND CLEAN ENERGY**  
3           **STANDARDS?**

4    **A.**    New nuclear resources are necessary for Duke Energy Carolinas to meet its  
5           customers' electricity needs over the long term despite the uncertain future of  
6           carbon legislation. The Company has an aging fleet of generation resources, with  
7           the average age of its plants being over 40 years old. New nuclear facilities offer  
8           significant benefits from a system planning perspective, as they operate at base  
9           load capacity factors and provide carbon emission-free energy for over half a  
10          century. Such resources provide a reliable operational foundation for the  
11          Company's system for a generation. In terms of costs, over the long-term  
12          horizon, nuclear costs, particularly the fuel costs, are relatively low as compared  
13          to the costs of coal or natural gas facilities. Duke Energy Carolina's current  
14          nuclear fleet provides over 5000 MWs of capacity and approximately 50% of the  
15          energy our customers consume. Due in part to the relatively low costs associated  
16          with operation of the Company's nuclear facilities, Duke Energy Carolina's retail  
17          customers enjoy rates that are 20% to 30% lower than the national average. Low  
18          electricity rates give our region a competitive advantage in attracting new jobs  
19          and businesses. Ultimately, this benefits our customers.

20                Even in the absence of carbon legislation, Duke Energy Carolinas must  
21          modernize and de-carbonize its resource options over the coming decades to  
22          retain its ability to provide affordable, reliable, and clean electricity to all of its  
23          customers. No matter what form it ultimately takes, stringent regulation of carbon



1 and other emissions will occur; to ignore this fact would be entirely unreasonable.  
2 To attempt to meet all aspects of the affordable, reliable, and clean energy goals,  
3 the Company must retain and enhance the diversity of its generation resource  
4 portfolio. A single resource type is not the answer; rather, a combination of  
5 resources, including new nuclear, natural gas, energy efficiency and demand side  
6 management programs, renewables, and advanced coal, must be collectively  
7 incorporated over time to balance risk, reliably meet demand, reduce carbon and  
8 other pollutant emissions, and minimize costs to customers.

9 **Q. HOW DOES THE SUPPLY AND COST OF NATURAL GAS FACTOR**  
10 **INTO THE DECISION TO CONTINUE THE DEVELOPMENT OF LEE?**

11 **A.** The Company is taking a measured approach with respect to the evolving market  
12 for natural gas. At present, natural gas prices have been forecasted to remain low  
13 over the near term. However, natural gas, as a commodity, has historically been  
14 subject to significant volatility in pricing, even during periods of robust supply.  
15 Questions remain regarding access to the new domestic reserves of shale natural  
16 gas that are driving the new supply estimates. Consequently, uncertainty exists  
17 regarding natural gas availability and pricing over the long term. I believe  
18 additional time and evaluation are necessary to assess the true achievable  
19 potential and market impact of the newly discovered domestic shale gas reserves.

20 Notwithstanding the foregoing, natural gas will certainly play a role in  
21 Duke Energy Carolinas' resource mix in the future and is part of the equation to  
22 meet customer needs over the long term. One need only look to the Company's  
23 construction of its Buck and Dan River combined cycle facilities to see the

1 increased importance of natural gas to the generation portfolio. However, I must  
2 emphasize that natural gas resources, like new nuclear resources, are only a part  
3 of the diversified future energy mix necessary for Duke Energy Carolinas to  
4 provide affordable, reliable and clean electricity to its customers over the coming  
5 decades.

6 **Q. WHAT IS THE STATUS OF JOINT OWNERSHIP OPPORTUNITIES**  
7 **FOR LEE NUCLEAR STATION?**

8 A. At present, Duke Energy Carolinas is independently developing Lee Nuclear  
9 Station. Duke Energy Carolinas continues to assess opportunities for joint  
10 ownership or financial arrangements that could be beneficial to its customers.  
11 Duke Energy Carolinas strongly believes in the idea of regional generation,  
12 whereby multiple companies come together to build nuclear plants in order to  
13 share risk and smooth out the rate impact to customers. As such, the Company  
14 continues to explore various partnership options, which would provide  
15 opportunities to share construction, project management, and operational risks,  
16 and provide tangible benefits to Duke Energy Carolinas' customers. This  
17 approach provides the advantage of adding capacity in smaller increments over  
18 time to better match load growth and planned retirements and lessens the cost  
19 recovery, collections, and cash flow impacts. Duke Energy Carolinas will update  
20 the Commission if there are any developments regarding joint ownership  
21 decisions for Lee Nuclear Station, but the Company is well positioned to move  
22 forward on this project independently and can support the need for its full  
23 capacity.

### **III. CONCLUSION**

1   **Q.   WHY DOES DUKE ENERGY CAROLINAS BELIEVE THAT THE**  
2       **COMMISSION SHOULD GRANT ITS AMENDED APPLICATION?**

3   **A.**   For all the reasons discussed in my testimony and those of Duke Energy  
4       Carolinas' other witnesses, the continued development of Lee Nuclear Station is  
5       valuable and important for our customers. We believe that the decision to incur  
6       additional necessary pre-construction costs is prudent and reasonable. The  
7       approval sought by this Amended Application will provide needed additional  
8       assurance that Lee Nuclear Station will continue to be an option to serve Duke  
9       Energy Carolinas' customers in the 2021 time frame.

10   **Q.   DOES THE COMMISSION'S APPROVAL OF DUKE ENERGY**  
11       **CAROLINAS' REQUEST IN THIS AMENDED APPLICATION**  
12       **PRECLUDE ADDITIONAL REGULATORY OVERSIGHT OF**  
13       **CONSTRUCTION COSTS AND FURTHER PRUDENCE REVIEWS BY**  
14       **THE COMMISSION?**

15   **A.**   No. The sole issue to be decided in this proceeding is whether the Commission  
16       agrees with Duke Energy Carolinas that it is prudent to continue to incur pre-  
17       construction costs related to Lee Nuclear Station. At this time, Duke Energy  
18       Carolinas is not asking the Commission to make a determination with respect to  
19       recovery of the dollars spent on specific items of costs for developing Lee. If the  
20       Commission grants this request, there will not be an immediate cost impact to  
21       customers. The Commission will retain significant oversight over the project  
22       development process and there will be ample opportunity for the South Carolina

1 Office of Regulatory Staff and the Commission to review and dispute future costs  
2 related to both construction and the project development.

3 **Q. DOES THIS COMPLETE YOUR PRE-FILED DIRECT TESTIMONY?**

4 **A.** Yes, it does.

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DIRECT TESTIMONY OF  
DHIAA M. JAMIL  
FOR DUKE ENERGY CAROLINAS, LLC

## **I. INTRODUCTION AND PURPOSE**

1   **Q.   PLEASE STATE YOUR NAME, ADDRESS, AND POSITION.**

2   **A.**   My name is Dhiaa M. Jamil. My business address is 526 South Church Street,  
3       Charlotte, North Carolina. I am Group Executive and Chief Generation Officer for  
4       Duke Energy Corporation ("Duke Energy") and Chief Nuclear Officer ("CNO") for  
5       Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company").

6   **Q.   WHAT ARE YOUR PRESENT RESPONSIBILITIES AT DUKE ENERGY?**

7   **A.**   As Group Executive and Chief Generation Officer and Chief Nuclear Officer, I am  
8       responsible for the safe, reliable, and efficient operation of the Company's nuclear,  
9       fossil and hydro fleets.

10  **Q.   PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**  
11  **PROFESSIONAL EXPERIENCE.**

12  **A.**   I graduated from the University of North Carolina at Charlotte with a Bachelor of  
13       Science degree in electrical engineering. I am a professional engineer in North  
14       Carolina and South Carolina and have completed the Institute of Nuclear Power  
15       Operations' ("INPO") senior nuclear plant management course and received my  
16       Duke Energy technical nuclear certification. I served as a senior member of the  
17       Institute of Electrical & Electronics Engineers ("IEEE") and as a member of the  
18       Council of the National Academy for Nuclear Training. I was also a member of  
19       Dominion Energy Management Safety Review Advisory Committee, the Tennessee  
20       Valley Authority Nuclear Safety Review Board, and currently serve on the INPO  
21       Executive Advisory Group and the Nuclear Strategic Initiative Advisory Committee  
22       of the Nuclear Energy Institute. I am currently the chairman of the Energy

1 Production and Infrastructure Center ("EPIC") Advisory Board for the University of  
2 North Carolina at Charlotte.

3 I began my career at Duke Energy Carolinas in 1981 as a design engineer in  
4 the design engineering department. After a series of promotions, I was named  
5 Oconee Nuclear Station Electrical Systems Engineering Supervisor in 1989;  
6 Electrical Engineering Manager in 1994; Maintenance Superintendent, McGuire  
7 Nuclear Station, in 1997; Station Manager of McGuire in September 1999; and Vice  
8 President of McGuire Nuclear Site in September 2002. I was named Vice President  
9 of Catawba Nuclear Station in July 2003, with responsibility for all aspects of the  
10 safe and efficient operation of the nuclear site. In December 2006, I was named  
11 Senior Vice President of Nuclear Support, where I was responsible for plant support,  
12 major projects, and fuel management for the nuclear fleet. I was also responsible for  
13 regulatory support, nuclear oversight and safety analysis functions. I was named  
14 Group Executive and Chief Nuclear Officer in January 2008. In July 2009, I was  
15 named to my current role as Group Executive and Chief Generation Officer for  
16 Duke Energy and I continue in the role of Chief Nuclear Officer for Duke Energy  
17 Carolinas.

18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
19 **PROCEEDING?**

20 **A.** The purpose of my testimony is to support Duke Energy Carolinas' Amended  
21 Project Development Application for Approval of Decision to Incur Nuclear  
22 Generation Pre-Construction Costs by discussing the Company's development work  
23 performed to date for the William States Lee, III Nuclear Station ("Lee Nuclear

1 Station”) to be located in Cherokee County, South Carolina, as well as to describe  
2 the completed and anticipated development work and related costs that have been  
3 and will be incurred during the period January 1, 2010, through December 31, 2013.  
4 In addition, I provide a brief overview of the Company’s current nuclear generation  
5 portfolio and operational performance.

## 6 **II. DUKE ENERGY CAROLINAS’ NUCLEAR GENERATION**

6 **Q. PLEASE DESCRIBE DUKE ENERGY CAROLINAS’ EXISTING**  
7 **NUCLEAR GENERATION PORTFOLIO.**

8 **A.** Duke Energy Carolinas’ nuclear generation portfolio consists of approximately  
9 5,200 megawatts (“MWs”) of generating capacity, made up as follows:

10 Oconee Nuclear Station - 2,538 MWs

11 McGuire Nuclear Station - 2,200 MWs

12 Catawba Nuclear Station - 435 MWs (Duke Energy Carolinas’ 19.2%  
13 ownership of the Catawba Nuclear Plant)

14 Oconee Nuclear Station, located in Oconee County, South Carolina began  
15 commercial operation in 1973 and was the first nuclear station designed, built, and  
16 operated by the Company. It has the distinction of being the second nuclear station  
17 in the country to have its license, originally issued for 40 years, renewed for an  
18 additional 20 years by the U.S. Nuclear Regulatory Commission (“NRC”).

19 McGuire Nuclear Station, located in Mecklenburg County, North Carolina  
20 began commercial operation in 1981 and Catawba Nuclear Station, located on Lake  
21 Wylie in York County, South Carolina began commercial operation in 1985. In  
22 2003, the NRC renewed the licenses for McGuire and Catawba for an additional 20  
23 years each. The Catawba Nuclear Station is jointly owned with North Carolina



1       Municipal Power Agency Number One, North Carolina Electric Membership  
2       Corporation ("NCEMC"), and Piedmont Municipal Power Agency. On September  
3       30, 2008, the Company and NCEMC closed on the purchase of Saluda River  
4       Electric Cooperative, Inc.'s ownership interest in Unit 1 of Catawba Nuclear Station.  
5       Following the close of the purchase, Duke Energy Carolinas' ownership interest in  
6       the Catawba Nuclear Station increased from 12.5% to 19.2%.

7   **Q.   PLEASE   DISCUSS   DUKE   ENERGY   CAROLINAS'   NUCLEAR**  
8   **OPERATIONAL PERFORMANCE.**

9   **A.**   The Company continues to be a leader in nuclear performance, but, is not alone in its  
10       excellence. The nuclear industry as a whole has been making great strides in  
11       improving operating performance. This improvement is reflected in benchmarking  
12       data, such as the North American Electric Reliability Council's ("NERC")  
13       Generating Availability Report. As in years past, the Company's nuclear plants  
14       have operated very well over the past year. Through September 30, 2010, the  
15       Company's seven nuclear units have operated at a system average capacity factor of  
16       96.25%, which is on track to be among the highest capacity factors the Company has  
17       experienced. In addition, when its outage began on September 18, 2010, Catawba's  
18       Unit 2 completed a 517 day breaker-to-breaker run, the second longest run for the  
19       Company's fleet; and on April 24, 2010, Oconee's Unit 2 completed a 497 day  
20       breaker-to-breaker run when it shut down for refueling. The system average nuclear  
21       capacity factor has been above 90% for over ten consecutive years. This  
22       demonstrated operational skill and experience will serve the Company well during  
23       the development and operation of Lee Nuclear Station.

### **III. LEE NUCLEAR STATION DEVELOPMENT ACTIVITIES**

1    **Q.    PLEASE DESCRIBE THE PROPOSED LEE NUCLEAR STATION.**

2    **A.**    As I previously testified in Docket No. 2007-440-E, Lee Nuclear Station would be  
3           constructed in Cherokee County, South Carolina at the Company's former Cherokee  
4           Nuclear Station site. Duke Energy Carolinas has selected the Westinghouse AP1000  
5           reactor technology, which is an advanced nuclear power generation technology that  
6           uses a simplified design and passive features such as the force of gravity and natural  
7           circulation to enhance plant safety and operations, and reduce construction costs.  
8           The plant utilizes the best components of currently deployed technologies, providing  
9           a high confidence that the facility will operate at high levels of safety and reliability.  
10          Each unit has an anticipated generation capacity of 1,117 MW, and the projected  
11          annual capacity factor of Lee Nuclear Station is expected to exceed 90% based upon  
12          current Duke Energy Carolinas' nuclear fleet performance.

13   **Q.    WHAT IS THE STATUS OF THE NRC'S CERTIFICATION OF THE**  
14   **AP1000 REACTOR DESIGN?**

15   **A.**    The AP1000 design was certified by the NRC in 2005. Subsequently, Westinghouse  
16          filed for an amendment to the design certification to address various design changes.  
17          These changes included coordination with Duke Energy and other AP1000  
18          combined license applicants to close out a number of items identified in the original  
19          design certification as requiring action by the Combined Construction and Operating  
20          License ("COL") applicants. The design certification amendment has been under  
21          review by the NRC for several months, and that review is presently on schedule for  
22          approval by October 2011. This schedule supports issuance of the first two COLs

1 for AP1000 design facilities (Units 3 and 4 at Alvin W. Vogtle Electric Generating  
2 Plant in Georgia and Units 2 and 3 at V.C. Summer Nuclear Station in South  
3 Carolina) within a few months thereafter, and issuance of the COL for Lee Nuclear  
4 Station in 2013.

5 **Q. WHAT IS THE DEVELOPMENT PLAN FOR LEE TO REMAIN ON**  
6 **SCHEDULE FOR A COMMERCIAL OPERATION DATE IN 2021?**

7 **A.** The regulatory approval and development process for Lee Nuclear Station is lengthy  
8 and complex, and the Company continues to work toward securing all necessary  
9 regulatory approvals. Duke Energy Carolinas filed its Combined Construction and  
10 Operating License Application (“COLA”) for Lee Nuclear Station on December 13,  
11 2007.

12 The NRC’s review of the COLA involves several major steps, including  
13 inspections and audits, public meetings, requests for additional information  
14 (“RAIs”), review of the Company’s responses to RAIs, and documentation of NRC  
15 review conclusions. These review activities are currently ongoing; for example, the  
16 Company has responded to over 800 RAIs to date. The NRC is currently in the  
17 process of documenting its review conclusions by way of preparing a draft  
18 Environmental Impact Statement (“EIS”) and draft Safety Evaluation Report  
19 (“SER”), which are necessary to support the decision to issue the COL to Duke  
20 Energy Carolinas for construction of a plant on Lee Nuclear Station site. The  
21 NRC’s issuance of these documents for public comment, which is expected in mid-  
22 2011, represents the next significant step in the licensing process. The NRC will  
23 also hold a public meeting in South Carolina to present its draft findings and to

1 solicit additional comments on the draft EIS and draft SER documents. The  
2 Commission is scheduled to hold a mandatory evidentiary hearing in the second half  
3 of 2012, as required by the Atomic Energy Act, to review the sufficiency of the  
4 NRC staff's decision-making with respect to the COL. If the decision making is  
5 deemed sufficient, the NRC will issue Duke Energy Carolinas a COL for Lee  
6 Nuclear Station. In addition to the NRC license, the Company is pursuing all other  
7 relevant environmental permits necessary to support plant construction and  
8 operation.

9 Finally, Duke Energy Carolinas anticipates filing its application for a  
10 Certificate of Environmental Compatibility and Public Convenience and Necessity  
11 ("CPCN") and a Base Load Review Order ("BLRO") with the Public Service  
12 Commission of South Carolina ("Commission") closer in time to receipt of the COL  
13 and closer in time to execution of the contract for engineering, procurement, and  
14 construction ("EPC") services at Lee Nuclear Station.

15 **Q. HOW DID THE DELAY OF THE COMMERCIAL OPERATION DATE**  
16 **AFFECT THE PROGRESS OF DEVELOPING LEE NUCLEAR STATION?**

17 **A.** Due to the decision to delay the commercial operation date ("COD") of Lee Nuclear  
18 Station Unit 1, expenditures for transmission right-of-way purchases, long-lead  
19 material reservations, and the training simulator were postponed. These  
20 expenditures are expected to occur during the 2011-2013 timeframe.

21 **Q. PLEASE DESCRIBE THE DEVELOPMENT ACTIVITIES, AND**  
22 **ASSOCIATED COSTS, THAT WILL BE COMPLETED PRIOR TO THE**  
23 **COMPANY'S ANTICIPATED RECEIPT OF THE COL IN 2013.**

1     **A.**     The following general categories of pre-construction work have been performed and  
2             are anticipated to be performed to continue the development of Lee Nuclear Station  
3             through the Company's anticipated receipt of the COL for the project in 2013:

4             **COLA Preparation** – includes labor, expenses, and contract support for preparation  
5             of the COLA tendered to the NRC on December 13, 2007. The NRC determined  
6             the application was suitable for review and docketed the application on February 25,  
7             2008.

8             **NRC Review and Hearing Fees** – includes labor, expenses, and contract support  
9             for activities required as a follow-up to submittal of the NRC COLA, including  
10            NRC review fees and costs associated with responding to NRC RAIs regarding the  
11            COLA, which include revisions and periodic updates required to the COLA. Also  
12            included are costs associated with development and regulatory review of various  
13            required permits and labor and expenses required for periodic updates to Duke  
14            Energy Carolinas' application to the Department of Energy for a Loan Guarantee for  
15            Nuclear Power Facilities.

16            **Land and Right of Way Purchases** – includes the cost of purchasing  
17            approximately 4000 acres for construction of Lee Nuclear Station, the make-up  
18            ponds, and rights-of-way for railroads. The original site purchase was completed in  
19            late 2005; however, additional property has been acquired for the land needed to  
20            construct a supplemental pond for make-up water for the plant in the event of an  
21            extended drought and for railroad rights-of-way. Additional land rights may be  
22            acquired to complete the desired buffer zone around Make-Up Pond C. Acquisition  
23            of transmission rights-of-way has not yet begun.

1       **Pre-construction and Site Preparation** – includes costs associated with  
2       remediation and demolition of onsite legacy structures. Other site preparation  
3       activities include the engineering required for bringing water, sewer, transmission,  
4       and railroads to and from the site, as well as engineering for traffic improvements  
5       around the site. This category also includes ongoing industrial 24 by 7 security and  
6       miscellaneous site maintenance, such as mowing, utilities, maintenance of  
7       excavation dewatering pumps, perimeter fence repairs, repairs to site drainage  
8       system and erosion repairs.

9       **Supply Chain, Construction Planning and Detailed Engineering** – includes costs  
10      and activities associated with working with the supplier to define a complete project  
11      scope and estimate and subsequent costs for negotiating an EPC agreement in 2008.  
12      This category also includes site specific engineering activities from 2011 to 2013  
13      that to date, have been limited to conceptual design necessary to support licensing  
14      and permitting activities. These items include the raw water system, including river  
15      intake structures; pumps and piping designs; a conceptual site drainage plan;  
16      physical site security features; routing and material types for condenser circulating  
17      water systems, cooling tower basins; make-up pond A, B, and C intake structures;  
18      and waste water retention basins. In 2011, detailed design engineering of the site  
19      specific structures, systems, and components will begin. A key Duke Energy risk  
20      mitigation strategy is to complete engineering work prior to site deployment, which  
21      is currently scheduled for 2014. Completing site specific engineering is a three to  
22      four year activity and therefore, needs to begin in 2011 to support the Company's  
23      current schedule. Site specific systems, structures and components include storm

1 drainage system; sanitary drain system; yard fire protection system; waste water  
2 system; potable water system; circulating water system; raw water system; liquid  
3 radwaste water system; retail onsite power system; chilled water plant system;  
4 meteorological system; utilities; security; commercial and temporary buildings; and,  
5 site specific support buildings.

6 **Operational Planning** – Continued operational planning activities associated with  
7 development of plant procedures and programs, as well as training material. Duke  
8 Energy is working in concert with other AP1000 utilities to develop these  
9 procedures, programs and training materials in a cost efficient manner.  
10 Development of these items using shared resources from across the member utilities  
11 leverages the resources and expertise of the member utilities and should ensure that  
12 the cost of completing this work is substantially lower than the cost that a single  
13 utility would incur to complete.

14 Duke Energy Carolinas estimates spending up to \$459 million for this  
15 necessary project development work through the anticipated receipt of the COL in  
16 2013. Duke Energy Carolinas anticipates additional updates to the estimate and  
17 schedule as the Company moves forward with the Lee Nuclear Station project, and  
18 will continue to update the Commission accordingly.

19 **Q. WHY DOES THE COMPANY'S AMENDED APPLICATION SEEK A**  
20 **DETERMINATION FROM THIS COMMISSION THAT IT IS PRUDENT**  
21 **FOR DUKE ENERGY CAROLINAS TO INCUR ADDITIONAL COSTS TO**  
22 **CONTINUE NECESSARY PRE-CONSTRUCTION WORK?**

1    **A.**     As testified to by Witness Hager, the Company's Integrated Resource Plan ("IRP"),  
2            filed with this Commission in Docket No. 2010-10-E, continues to support a COD  
3            for Lee Nuclear Station in the 2021 timeframe. Duke Energy Carolinas seeks to  
4            continue to preserve the option to have Lee Nuclear Station available to serve  
5            customers in the 2021 timeframe by continuing the development efforts without  
6            interruption or delay. The preconstruction work described herein is necessary to  
7            ensure that the Company can secure a COL in 2013 and keep the project on pace for  
8            commercial operation in 2021.

#### IV.    CONCLUSION

9    **Q.**     **DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY IN**  
10            **SUPPORT OF THE COMPANY'S AMENDED APPLICATION?**

11   **A.**     Yes, it does.